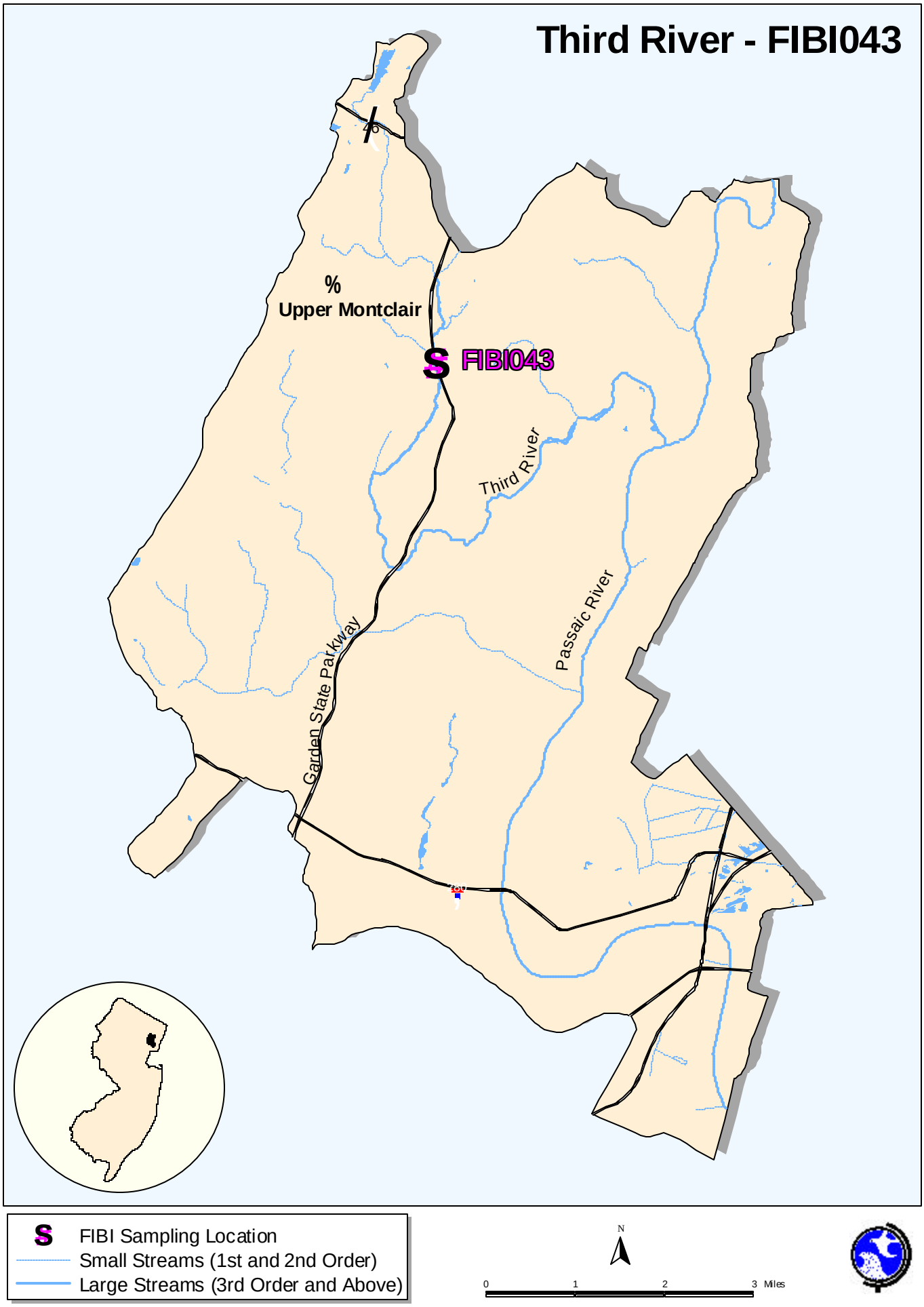
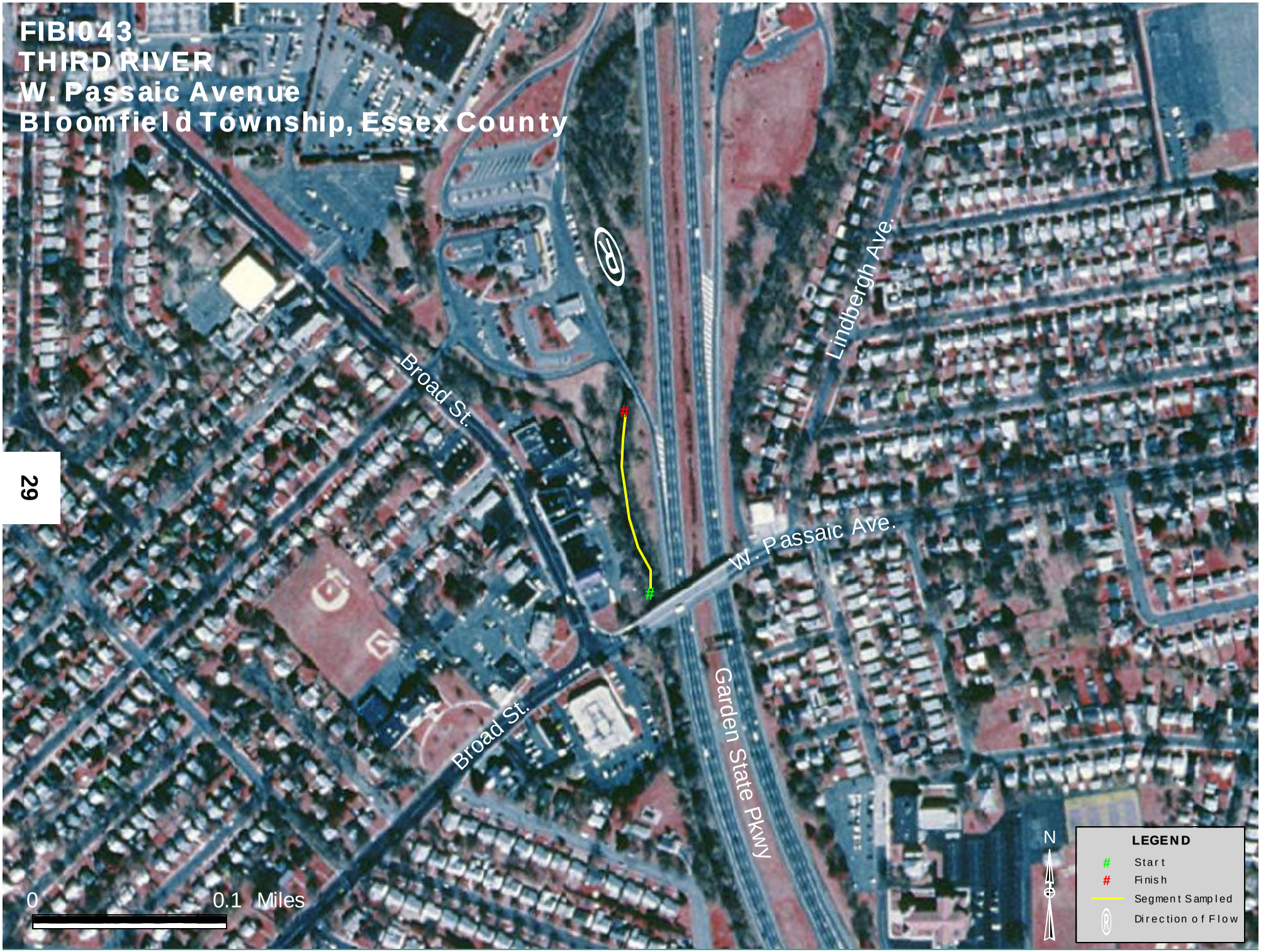
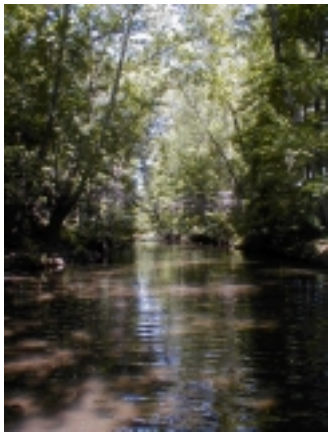

Third River - FIBI043
Upper Montclair
FIBI043
Third River
Passaic River
Garden State Parkway
FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)
N
0
1
2
3 Miles


FIBI043
THIRD RIVER
W. Passaic Avenue
Bloomfield Township, Essex County
29
Broad St.
Broad St.
W. Passaic Ave.
Lindbergh Ave.
Garden State Pkwy
#
#
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

SUMMARY OF RESULTS

FIBI043 - Third River



1. Stream Name:	Third River
2. Sampling Date:	06-18-2002
3. Sampling Location:	West Passaic Ave (40 50 00.36; -74 10 46.52)
4. Municipality:	Bloomfield Twp.
5. County:	Essex
6. Watershed Management Area:	4
7. Contributing Drainage Area:	5.1 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	36 - Fair
10. Habitat Score and Rating:	101 - Marginal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data	
Proximity of FIBI station to AMNET station:	AN0292a
AMNET Rating:	Round 1 – NA; Round 2 – MODERATE
13. Stream Chemistries	
Dissolved Oxygen:	9.2 mg/L
Temperature:	17.1 ^{0}C
pH:	6.7
Conductivity:	740 µmhos/cm
14. Number of Fish with Anomalies:	0
15. Length of Stream Segment Sampled:	150 Meters
16. Water Clarity:	Clear
17. Average Open Forest Canopy:	22%
18. Discharge:	13.96 ft.^{3}/sec
19. Substrate:	40% Gravel and Sand, 40% Cobble, 0% Boulder, 0% Clay, 20% Silt
20. Habitat:	10% Riffle, 15% Run, 75% Pool
21. Snags:	Yes
22. Periphyton:	Slight
23. Submerged Aquatic Vegetation:	No
24. Other Observations:	Missed disproportional amount of tesselated darters; lots of debris and trash
25. Number of Fish Species Identified:	7
26. Total Number of Fish Collected:	490

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI043 06-18-2002

Third River

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Tesselated Darter	*Etheostoma olmstedi*	216	
Mummichog	*Fundulus heteroclitus*	129	
White Sucker*	*Catostomus commersoni*	61	
Green Sunfish*	*Lepomis cyanellus*	49	2.0-3.9
Blacknose Dace	*Rhinichthys atratulus*	25	
Pumpkinseed*	*Lepomis gibbosus*	9	1.4-3.1
Largemouth Bass*	*Micropterus salmoides*	1	3.9

* Regulated as a fishable species under current New Jersey Fish and Wildlife codes

Species Identified at Third River (FIBI043)

(Not to Scale)

John Scarola

Tesselated Darter

AFS

Largemouth Bass

Konrad Schmidt

Green Sunfish

John Scarola

Pumpkin Seed

John Scarola

White Sucker

John Scarola

Blacknose Dace

Species Identified at Third River (FIBI043)

(Not to Scale)

John Scarola

Mummichog

FIBI043 - Third River @ W. Passaic Avenue Excellent Good **Fair** Poor

Date Sampled - 6/18/2002

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	1
Proportion of Individuals as White Suckers	3
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous **Cyprinids** (I and BI)	1
Proportion of Individuals as Trout *whichever gives better score	
OR	
Proportion of Individuals as Pisciviores (Excluding American Eel)*	1
Number of Individuals in Sample	5
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**36**

Stream Rating

45-50	**Excellent**
37-44	**Good**
29-36	**Fair**
10-28	**Poor**

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS — Third River (FIBI043) – 6/18/02

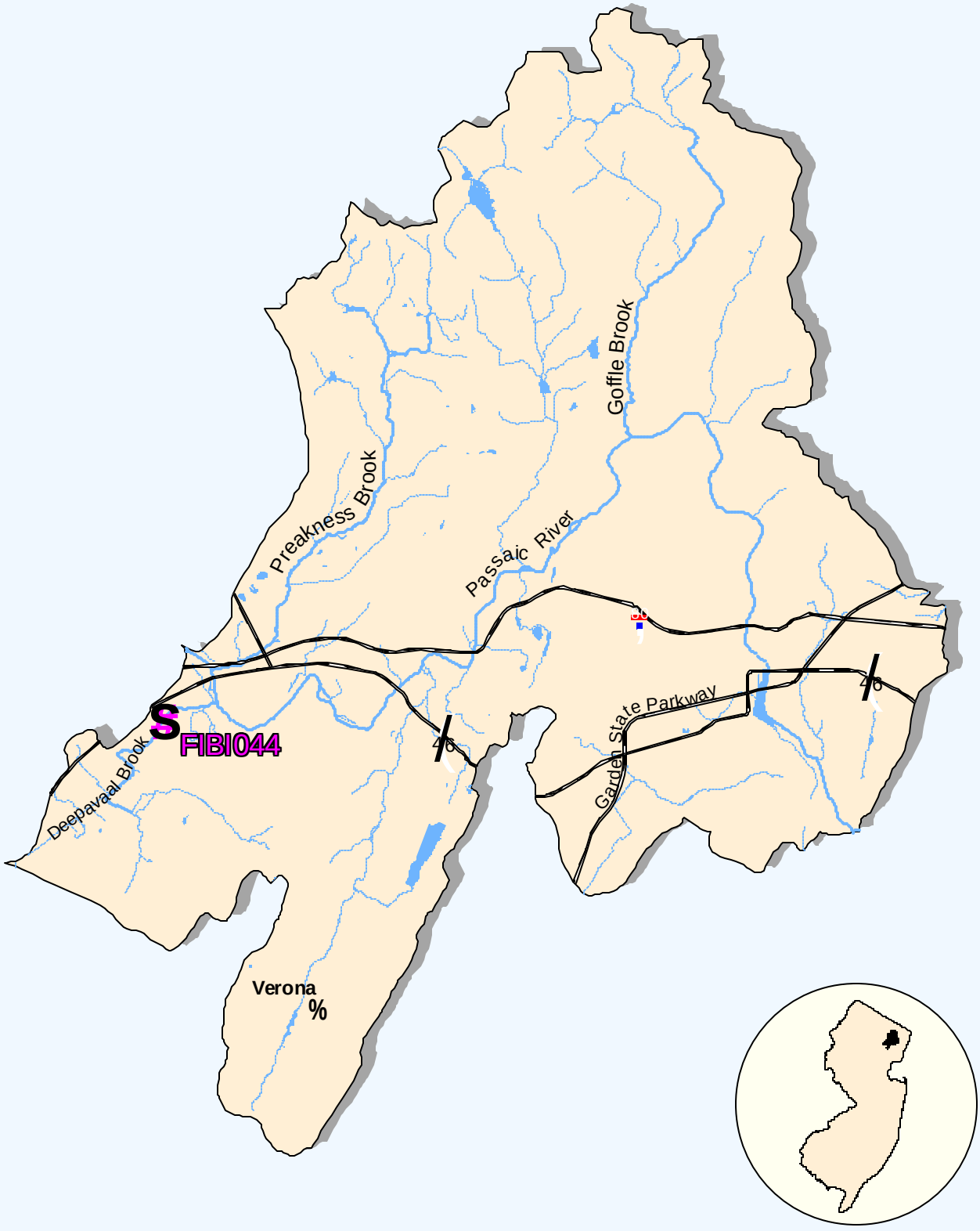
	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate /Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 9	20 19 18 17 16	15 14 13 12 11	10 **9** 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 13	20 19 18 17 16	15 14 **13** 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 14	20 19 18 17 16	15 **14** 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 12	20 19 18 17 16	15 14 13 **12** 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___**6**___ (LB)	Left 10 9	8 7 **6**	5 4 3	2 1 0
SCORE ___**6**___ (RB)	Right 10 9	8 7 **6**	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___**5**___ (LB)	Left 10 9	8 7 6	**5** 4 3	2 1 0
SCORE ___**5**___ (RB)	Right 10 9	8 7 6	**5** 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___**2**___ (LB)	Left 10 9	8 7 6	5 4 3	**2** 1 0
SCORE ___**5**___ (RB)	Right 10 9	8 7 6	**5** 4 3	2 1 0

HABITAT SCORE

101

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	110 – 159
MARGINAL	**60 – 109**
POOR	< 60

Deepavaal Brook - FIBI044



S FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)

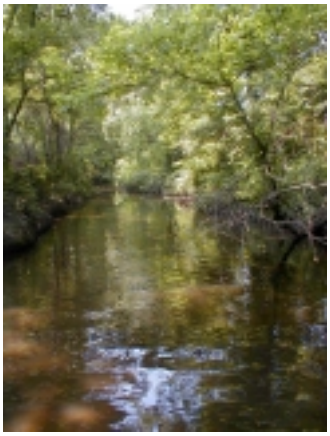
N

0 1 2 3 Miles


FIBI044
DEEPAVAAL BROOK
Daniel Road
Fairfield Township, Essex County
Fairfield Rd.
Daniel Rd.
Sperry Rd.
New Dutch Ln.
Eldridge Rd.
37
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

SUMMARY OF RESULTS

FIBI044 - Deepavaal Brook



1. Stream Name:	Deepavaal Brook
2. Sampling Date:	06-11-2002
3. Sampling Location:	Daniel Road (40 53 02.84; -74 16 40.12)
4. Municipality:	Fairfield Twp.
5. County:	Essex
6. Watershed Management Area:	4
7. Contributing Drainage Area:	5.6 Square Miles
8. Electrofishing Gear:	2 Backpack
9. FIBI Score and Rating:	36 - Fair
10. Habitat Score and Rating:	76 - Marginal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data:	
Proximity of FIBI station to AMNET station:	0.76 mi upstream AN0271
AMNET Rating:	Round 1 – MODERATE; Round 2 – MODERATE
13. Stream Chemistries	
Dissolved Oxygen:	6.1 mg/L
Temperature:	18.8 ^{0}C
pH:	6.85
Conductivity:	583 µmhos/cm
14. Number of Fish with Anomalies:	0
15. Length of Stream Segment Sampled:	150 Meters
16. Water Clarity:	Slightly Turbid
17. Average Open Forest Canopy:	29%
18. Discharge:	7.43 ft.^{3}/sec
19. Substrate:	45% Gravel and Sand, 5% Cobble, 0% Boulder, 0% Clay, 50% Silt
20. Habitat:	10% Riffle, 40% Run, 50% Pool
21. Snags:	Yes
22. Periphyton:	None
23. Submerged Aquatic Vegetation:	Yes
24. Other Observations:	
25. Number of Fish Species Identified:	11
26. Total Number of Fish Collected:	92

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI044 06-11-2002

Deepavaal Brook

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Bluegill*	*Lepomis macrochirus*	34	1.8-3.5
White Sucker*	*Catostomus commersoni*	20	
Eastern Mudminnow	*Umbra pygmaea*	14	
Green Sunfish*	*Lepomis cyanellus*	8	1.8-4.5
Tesselated Darter	*Etheostoma olmstedi*	5	
Pumpkinseed*	*Lepomis gibbosus*	3	3.0-3.9
Redfin Pickerel*	*Esox americanus americanus*	3	2.4-9.3
Yellow Bullhead*	*Ameiurus natalis*	2	4.7-6.7
Banded Killifish	*Fundulus diaphanus*	1	
Fathead Minnow	*Pimephales promelas*	1	
Largemouth Bass*	*Micropterus salmoides*	1	3.0

* Regulated as a fishable species under current New Jersey Fish and Wildlife codes

Species Identified at Deepavaal Brook (FIBI044)

(Not to Scale)

John Scarola

Tesselated Darter

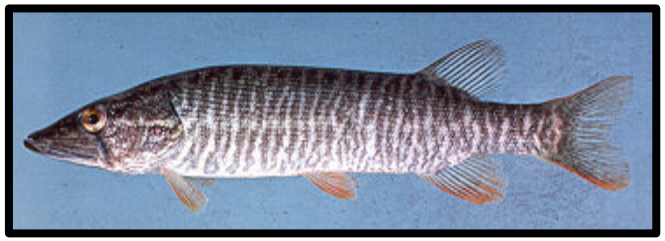
AFS

Largemouth Bass

Konrad Schmidt

Green Sunfish

Jenkins & Burkhead



Redfin Pickerel

John Scarola

White Sucker

John Scarola

Bluegill

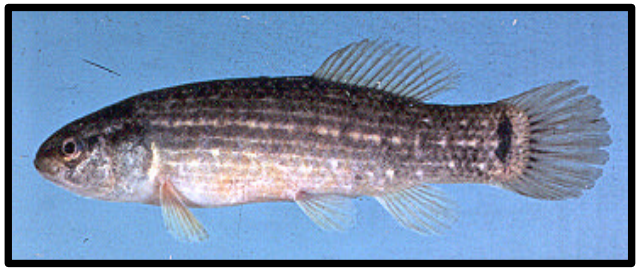
Species Identified at Deepavaal Brook (FIBI044)

(Not to Scale)

John Scarola

Yellow Bullhead

Jenkins & Burkhead



Eastern Mudminnow

William Roston

Fathead Minnow

John Scarola

Banded Killifish

John Scarola

Pumpkinseed

Stormwater runoff continues to impact the quality of the State's waterbodies by eroding banks and flushing pollutants, including floating debris (see below), into surface waters.

The amount of floating debris trapped behind these fallen branches highlights the impact that uncontrolled stormwater discharge has on waterbodies in urbanized areas.

FIBI044 - Deepavaal Brook @ Daniel Road Excellent Good **Fair** Poor

Date Sampled - 6/11/2002

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	5
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	5
# of Intolerant Species (IS)	1
Proportion of Individuals as White Suckers	3
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous **Cyprinids** (I and BI)	1
Proportion of Individuals as Trout *whichever gives better score	
OR	
Proportion of Individuals as Pisciviores (Excluding American Eel)*	3
Number of Individuals in Sample	3
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**36**

Stream Rating

45-50	**Excellent**
37-44	**Good**
29-36	**Fair**
10-28	**Poor**

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS Deepavaal Brook (FIBI044) – 6/11/02

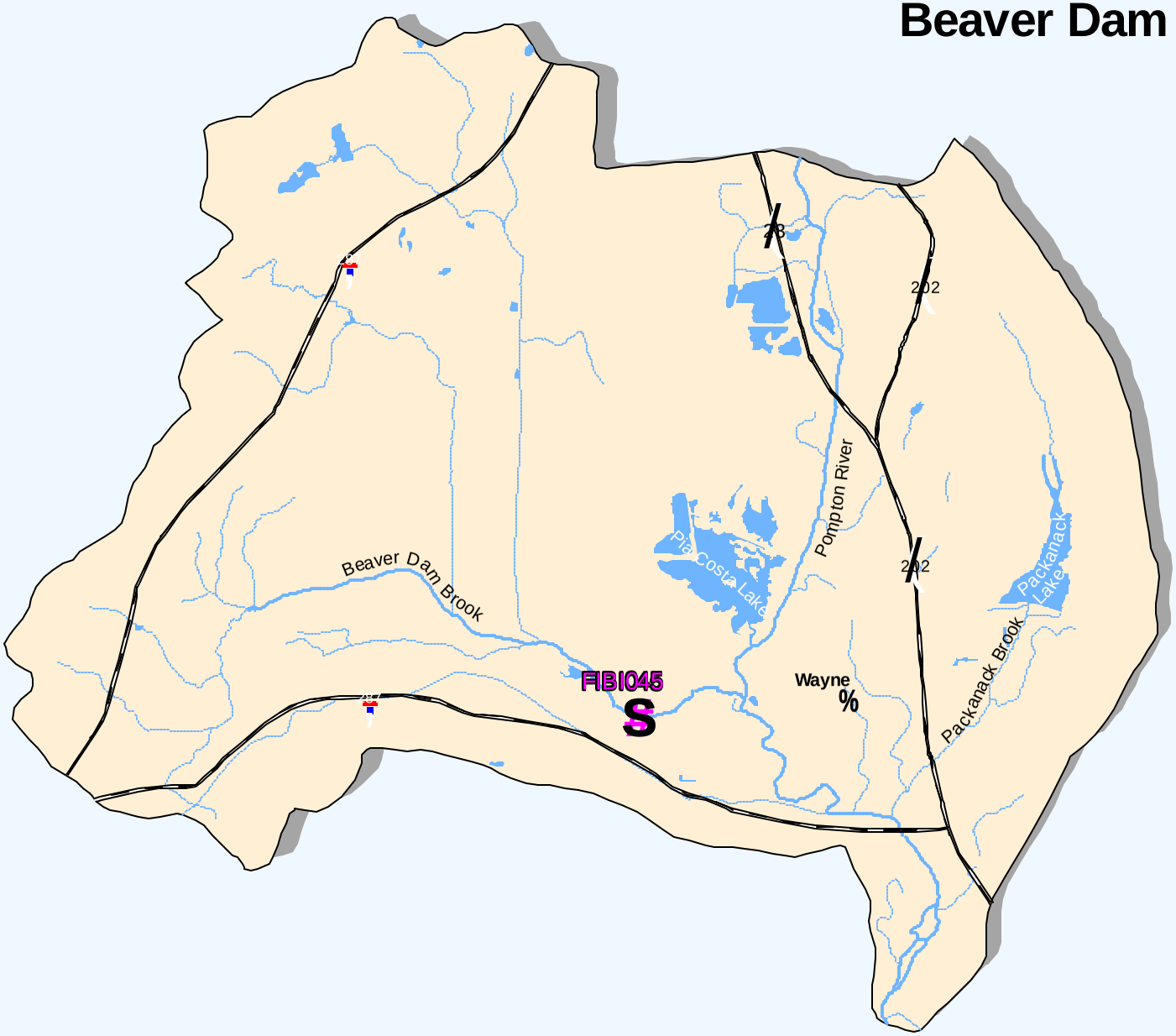
	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate /Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 **2** 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 0	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 **0**
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 7	20 19 18 17 16	15 14 13 12 11	10 9 8 **7** 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 16	20 19 18 17 **16**	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 13	20 19 18 17 16	15 14 **13** 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 **2** 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___**5**___ (LB)	Left 10 9	8 7 6	**5** 4 3	2 1 0
SCORE ___**4**___ (RB)	Right 10 9	8 7 6	5 **4** 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___**7**___ (LB)	Left 10 9	8 **7** 6	5 4 3	2 1 0
SCORE ___**5**___ (RB)	Right 10 9	8 7 6	**5** 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___**4**___ (LB)	Left 10 9	8 7 6	5 **4** 3	2 1 0
SCORE ___**3**___ (RB)	Right 10 9	8 7 6	5 4 **3**	2 1 0

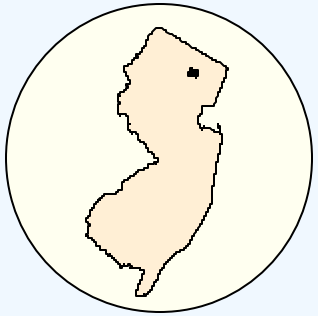
HABITAT SCORE

76

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	110 – 159
MARGINAL	**60 – 109**
POOR	< 60

Beaver Dam Brook - FIBI045





S FIBI Sampling Location
Small Streams (1st and 2nd Order)
Large Streams (3rd Order and Above)

N

0 0.5 1 1.5 2 Miles

45


FIBI045
BEAVER DAM BROOK
Park Avenue
Lincoln Park Boro, Morris County
46
Comly Rd.
Park Ave.
E. Main St.
NJ Transit Railroad
Boonton Tpk.
0
0.1 Miles
N
LEGEND
Start
Finish
Segment Sampled
Direction of Flow

SUMMARY OF RESULTS

FIBI045 - Beaver Dam Brook

1. Stream Name:	Beaver Dam Brook
2. Sampling Date:	07-10-2002
3. Sampling Location:	off Park Ave (40 55 26.81; -74 17 59.92)
4. Municipality:	Lincoln Park
5. County:	Morris
6. Watershed Management Area:	3
7. Contributing Drainage Area:	12.5 Square Miles
8. Electrofishing Gear:	Backpack
9. FIBI Score and Rating:	32 - Fair
10. Habitat Score and Rating:	86 - Marginal
11. Fishable Species Present:	Yes
12. Relevant AMNET[1] Station Data	
Proximity of FIBI station to AMNET station:	1.43 mi upstream AN0269
AMNET Rating:	Round 1 – MODERATE; Round 2 – MODERATE
13. Stream Chemistries	
Dissolved Oxygen:	4.6 mg/L
Temperature:	21.7 ^{0}C
pH:	7.08
Conductivity:	404 µmhos/cm
14. Number of Fish with Anomalies:	0
15. Length of Stream Segment Sampled:	150 Meters
16. Water Clarity:	Turbid
17. Average Open Forest Canopy:	27.3%
18. Discharge:	7.21 ft.^{3}/sec
19. Substrate:	60% Gravel and Sand, 20% Cobble, 0% Boulder, 10% Clay, 10% Silt
20. Habitat:	20% Riffle, 30% Run, 50% Pool
21. Snags:	Yes
22. Periphyton:	Slight
23. Submerged Aquatic Vegetation:	Yes
24. Other Observations:	four storm drains, trash, 25 meter of riprap rock wall
25. Number of Fish Species Identified:	8
26. Total Number of Fish Collected:	212

[1] AMNET is the acronym for the DEP's ambient benthic macroinvertebrate monitoring network – a series of 820 monitoring stations located throughout the state's waterways that collects data on the health of bottom dwelling stream fauna which in turn is used to assess general water quality.

FIBI045 07-10-2002

Beaver Dam Brook

LISTED IN ORDER OF ABUNDANCE FOUND

COMMON NAME	SCIENTIFIC NAME	# FOUND	SIZE RANGE (INCHES)
Tesselated Darter	*Etheostoma olmstedi*	131	
Green Sunfish*	*Lepomis cyanellus*	27	1.4-4.5
White Sucker*	*Catostomus commersoni*	26	
Creek Chub	*Semotilus atromaculatus*	13	
Redfin Pickerel*	*Esox americanus americanus*	10	3.1-7.5
Bluegill*	*Lepomis macrochirus*	2	2.8
Redbreast Sunfish*	*Lepomis auritus*	2	4.1-5.5
Eastern Mudminnow	*Umbra pygmaea*	1	

* Regulated as a fishable species under current New Jersey Fish and Wildlife codes

Species Identified at Beaver Dam Brook (FIBI045)

(Not to Scale)

John Scarola

Tesselated Darter

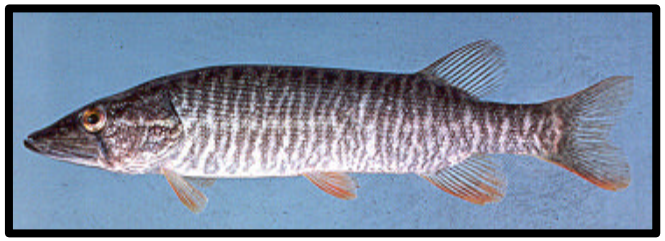
Konrad Schmidt

Creek Chub

Konrad Schmidt

Green Sunfish

Jenkins & Burkhead



Redfin Pickerel

John Scarola

White Sucker

John Scarola

Redbreast Sunfish

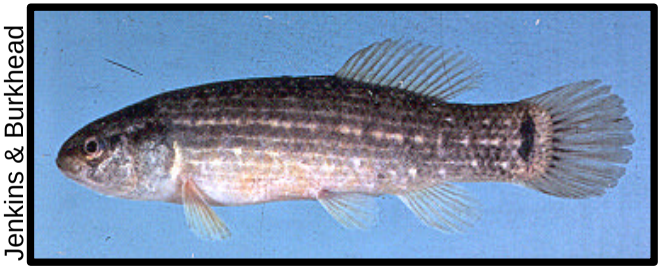
Species Identified at Beaver Dam Brook (FIBI045)

(Not to Scale)

John Scarola

Bluegill

Jenkins & Burkhead



Eastern Mudminnow

FIBI045 - Beaver Dam Brook off Park Avenue Excellent Good **Fair** Poor

Date Sampled - 7/10/2002

	Score
# of Fish Species	5
# of Benthic Insectivorous Species (BI)	3
# of Trout and Centrarchid Species (trout, bass, sunfish, crappie)	3
# of Intolerant Species (IS)	1
Proportion of Individuals as White Suckers	3
Proportion of Individuals as Generalists (carp, creek chub, banded killifish, goldfish, fathead minnow, green sunfish)	5
Proportion of Individuals as Insectivorous **Cyprinids** (I and BI)	1
Proportion of Individuals as Trout *whichever gives better score OR Proportion of Individuals as Pisciviores (Excluding American Eel)*	3
Number of Individuals in Sample	3
Proportion of Individuals w/disease/anomalies (excluding blackspot)	5
Total	**32**

Stream Rating

45-50	**Excellent**
37-44	**Good**
29-36	**Fair**
10-28	**Poor**

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS Beaver Dam Brook (FIBI045) – 7/10/02

	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate /Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 **8** 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 12	20 19 18 17 16	15 14 13 **12** 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 18	20 19 **18** 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 **6**	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 7	20 19 18 17 16	15 14 13 12 11	10 9 8 **7** 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE ___**2**___ (LB)	Left 10 9	8 7 6	5 4 3	**2** 1 0
SCORE ___**4**___ (RB)	Right 10 9	8 7 6	5 **4** 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE ___**2**___ (LB)	Left 10 9	8 7 6	5 4 3	**2** 1 0
SCORE ___**5**___ (RB)	Right 10 9	8 7 6	**5** 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
SCORE ___**2**___ (LB)	Left 10 9	8 7 6	5 4 3	**2** 1 0
SCORE ___**4**___ (RB)	Right 10 9	8 7 6	5 **4** 3	2 1 0

HABITAT SCORE

86

HABITAT SCORES	VALUE
OPTIMAL	160 – 200
SUB-OPTIMAL	110 – 159
MARGINAL	**60 – 109**
POOR	< 60